Georgia Forestry Commission
Forest Health Highlights

October 1, 2017 through September 30, 2018

Chip Bates – Forest Health Coordinator
Mark McClure, Lynne Womack, Chris Barnes – Forest Health Specialists

Summary:

The Forest Health Management Section provides forest health advice to a wide variety of citizens in the state, including consulting firms, industry, natural resource managers, landowners, and Georgia Forestry Commission (GFC) personnel.

In 2018, Georgia Forestry Commission foresters incorporated insect, disease, or invasive species advice in 465 management cases involving 17,439 acres and 176 Forest Stewardship and Tree Farm plan were written covering 61,270 acres.

In an effort to extend our education program in Georgia, training was provided to 4,205 Georgia citizens during 73 training sessions. This training incorporated a wide variety of outreach methods, including field days, exhibits, demonstration plots, field training, hands-on education, and classroom presentations. In a broader outreach effort, four public outreach events were conducted at state and county fairs with an estimated 82,500 Georgia citizens reached, and four multimedia interviews were produced with an estimated audience of 75,000.

Special notes of interest:

Emerald Ash Borer

Emerald Ash Borer (EAB) was discovered in July 2013, and trapping data shows it is now found in 26 counties: **Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Dawson, DeKalb, Douglas, Fannin, Fayette, Fulton, Gilmer, Gwinnett, Habersham, Henry, Lumpkin, Murray, Newton, Rabun, Rockdale, Union, Walker, Walton, White, and Whitfield Counties**. Three new counties were detected in 2018 for the presence of EAB. A map of the quarantine area and a list of the counties positive for EAB can be found here: Emerald Ash Borer Counties

Asian Gypsy Moth

On September 25, 2015, a single, adult male Asian gypsy moth was identified in a trap directly outside the Port of Savannah. This federally regulated Asian gypsy moth initiated an intense systematic grid survey in 2016 to determine if this moth was a single capture or if additional Asian gypsy moths are present. At the completion of the 2018 trapping survey, no additional Asian gypsy moths had been detected in Georgia, but one North American gypsy moth was trapped and identified.

Hurricane Damage

Georgia was impacted by Hurricane Michael, October 10-11, 2018. Georgia experienced extreme winds (125-150 miles per hour) from southeast Georgia to near Dublin in the center of the state.

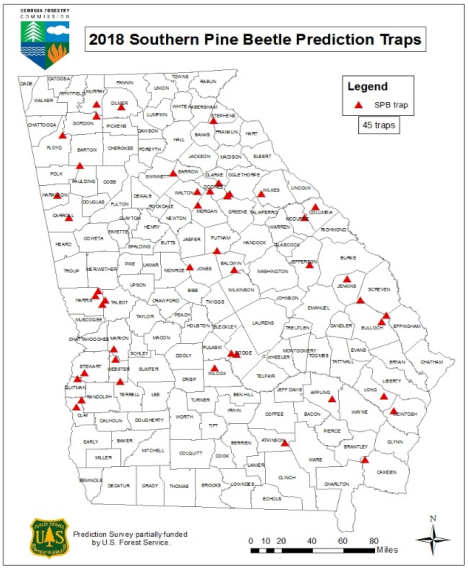
Tropical storm winds and rain were experienced from central Georgia, through South Carolina and as far north as Virginia.

The Timber Damage Assessment survey showed that 2,368,226 acres of forestland were impacted by Hurricane Michael with 20,510,889 tons of pine and 17,178,721 tons of hardwood being damaged with an estimated value of $762,683,909.
Hurricane Michael Assessment

Pine Beetle Pheromone Trapping / Pine Beetle Aerial Survey / Ips Engraver Beetle Outbreak:

For the second year, in 2018, the Georgia Forestry Commission followed the new SPB Prediction Trapping protocol set up by Texas A&M. 45 traps were placed across the state and six weekly samples were collected from each trap. These traps containing three lures, Frontalin, Sirex and the endo-brevicomin flexlure. Trap collections showed high SPB numbers in Bartow, McIntosh and Oglethorpe Counties. New USFS prediction calculations showed these counties with greater than 50% probability of having an SPB spot.

This year also marked the first year of a transition from using traditional data sheets to using Survey123 technology. This new method was presented at the SFIWC conference in San Antonio, TX in July 2018 and a unanimous decision was made to adopt the collection system across the Southeast United States.

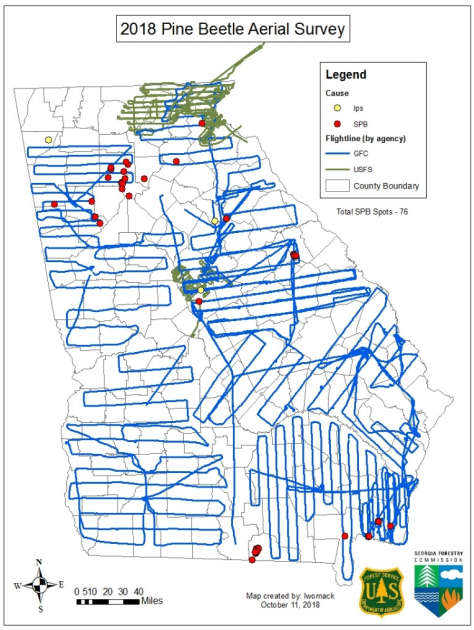


2018 Pine Beetle Prediction Trap Locations

Southern Pine Beetle activity was concentrated in the northwest portion of the state in 2018. From May 19- September 7, GFC employees flew 13,148 miles of aerial surveys with visual observations on 14,600,000 acres (approximately 38% survey) with 76 SPB spots being detected on approximately 190 acres.

The hotspot for 2018 was once again north Georgia, mainly in Cherokee and Fulton Counties. These areas were surrounded by development, with little room to spread.

Other spots of concern were scattered across Georgia, mostly in the coastal and southeastern parts of the state. In every case, local foresters visited these landowners, giving advice to harvest the spots or keep watching them to determine if they were actively spreading. Monitoring in 2019 will begin in March and continue through September.



2018 Pine Beetle Aerial Survey

During the summer of 2016 through January 2017 unprecedented outbreaks of Ips engraver beetles occurred across all of north Georgia, from the fall line into our neighboring states of Alabama and Tennessee. Once soil moisture increased and the drought index decreased, there was a reduction in the number of Ips infestations across the region.

In 2018, aerial surveys identified pine bark beetle infestations on private lands in central Georgia, but infestations were not of the unprecedented size ranging from five to 60 acres. During the flights, only small spots (.25 acre or less) were noted in central Georgia.

Southern Pine Beetle Prevention and Restoration Grant Report (2003-2016):

The USDA Forest Service has provided federal grants in this program area for 16 consecutive years and grant funding These grants were primarily utilized for direct cost share payments to Georgia landowners to implement several prevention practices to treat high risk stands and forest restoration practices. Of these grants totaling $12.08 million, *$7.36* million has been obligated towards direct landowner payments under cost share practices treating approximately 313,600 acres.

SPB 2018 - SPB cost share funds for 2018 were obligated towards southern pine beetle prevention and restoration practices.

Program Overview - Landowners work directly with their county GFC forester for all phases of the program. This process has been favorably accepted as it seeks to streamline the procedures from start to finish. During federal fiscal year 2018, GFC foresters serviced 718 contracts covering 32,687 acres.

Heterobasidion root disease (Formerly known as annosus root disease):

Reports of *Fomes annosus*, or annosus root disease, began in 2005 with identification of widespread mortality in recently thinned pine plantations (slash and loblolly). The incidence of Heterobasidion root disease has declined with landowner education programs, and improvements in application products and techniques to combat this disease.

Michelle Cram, Plant Pathologist, USDA Forest Service, worked diligently to insure labeling of *Phlebiopsis gigantea* for control of annosus root disease. On October 6, 2016, the label for Rotstop was approved in the United States. This new label provides an additional tool to control Heterobasidion root disease, and removes the rigid time constraint of 24 hour treatments.

The Georgia Forestry Commission continues to recommend this treatment to landowners across the state and will continue to work closely with Ms. Cram to educate landowners about this new treatment option.

The Heterobasidion Root Disease brochure can be found at: Heterobasidion Root Disease brochure .

Hemlock Woolly Adelgid:

The Georgia Forestry Commission provided assistance to the predator beetle rearing labs at the University of Georgia, University of North Georgia and Young Harris College. Activities included scouting for and collecting foliage for rearing, surveying and preparing beetle release locations, and releasing beetles. The GFC played a critical role in the logistics of delivering foliage to the labs and getting beetles to the selected release areas.

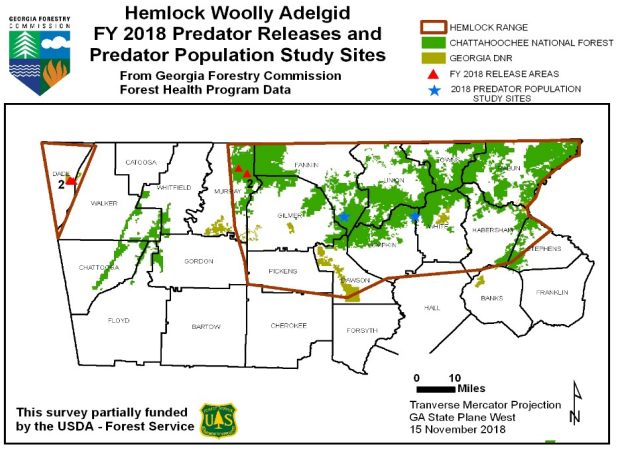
In FY2018, GFC scouted 17 sites, and five predator beetle release areas were selected: three in the Chattahoochee National Forest and two in Georgia State Parks. The GFC conducted 15 predator beetle releases on these sites. *Laricobius nigrinus (Ln)* was released at two sites. *Sasajiscymnus tsugae (St)* was released at four of the sites. Four of these release areas represent excellent potential for field insectary sites and will continue to be a major focus in FY2019.

Elongate Hemlock Scale was identified in some of our designated release, recovery and foliage collection sites and a needle cast fungus was also documented. These concerns led to the decision that only adult beetles would be released in the future, to reduce the risk of spreading these ailments to other sites with eggs-on-foliage releases, and as we move forward, predator population studies will be a major part of this program moving forward.

The Georgia Forestry Commission continued to serve in an advisory capacity, working with the Georgia Department of Natural Resources to help survey and protect hemlocks on state lands. This year, the GFC provided chemicals for treatment of hemlocks in the Wildcat Tract of the Dawson Forest WMA. On Lula Lake Land Trust properties, the GFC continues to work with staff and a contractor to delineate current and future predator beetle release areas and to coordinate releases with chemical treatment.

The GFC assisted numerous cities, communities, homeowner associations and individuals with HWA issues. The soil injector loan program continues to be extremely popular with homeowners. During peak application times, there is a waitlist in several counties for use of the injectors. The total number of injectors available to landowners is now 17, and injectors are now available in the following counties: Dade, Dawson, Fannin, Gilmer, Habersham, Lumpkin, Murray, Pickens, Rabun, Union and Walker.

The GFC public website postings are continuously updated in an effort to relay this information.
Hemlock Woolly Adelgid Information.

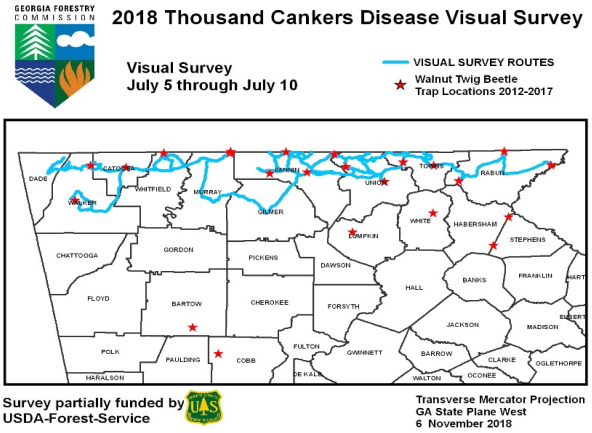


Hemlock Woolly Adelgid Predator Release Sites

Thousand Cankers Disease:

The Georgia Forestry Commission Forest Health staff has been concerned about the rapid spread of the walnut twig beetle (*Pityophthorus juglandis*) and the associated thousand cankers disease since its introduction near Knoxville, Tennessee in 2009. After six years of pheromone trapping with no positive trap samples, GFC suspended trapping for 2018.

From July 5-10, 2017, GFC conducted windshield visual surveys for thousand cankers disease and over 425 miles of North Georgia was visually surveyed. Trees showing multiple twig or branch level die-back were inspected more carefully. No suspected disease was found on these routes.



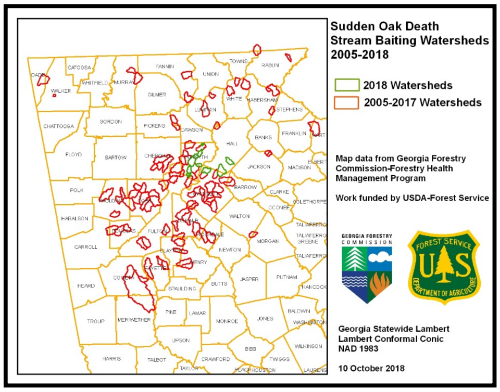
Walnut Twig Borer Survey Sites

Sudden Oak Death:

2018 marks the 14th year Sudden Oak Death early detection program surveys have been taken. Ten north Georgia watersheds were chosen to monitor for the presence of the pathogen *Phytopthora ramorum.* In 2018, special focus was placed on watersheds in the northeast metro Atlanta area. Five new early detection watersheds that have had no early detection sampling to date were selected, and five early detection watersheds are being revisited.

In addition, stream-baiting continued in two watersheds that have produced multiple positive samples in past years. Both of these watersheds have nurseries that had positive plants and soil in the past.

All stream sampling in 2018 was done using the bottle of baits method. Three samples were taken from April 5 through May 3, 2018 and three samples were completed in October and November 2018. Results from these samples were negative for *P. ramorum*.

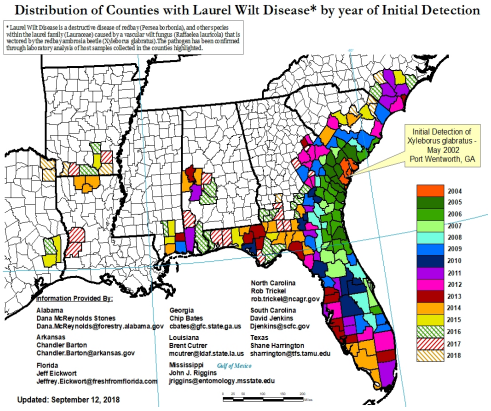


Sudden Oak Death Survey Sites

Laurel Wilt Disease:

Laurel wilt disease was introduced at the Port of Savannah in solid wood packing material. The first redbay ambrosia beetle was detected in an Early Detection Rapid Response monitoring trap in Garden City, GA in 2002 and dead redbay trees were evident near the coast in GA and SC by 2004.

The spread of Laurel wilt disease throughout the southeastern United States has been charted since 2005 with updates made quarterly to the USDA Forest Service Southern Region website under Forest and Grassland Health (Spot Lights).



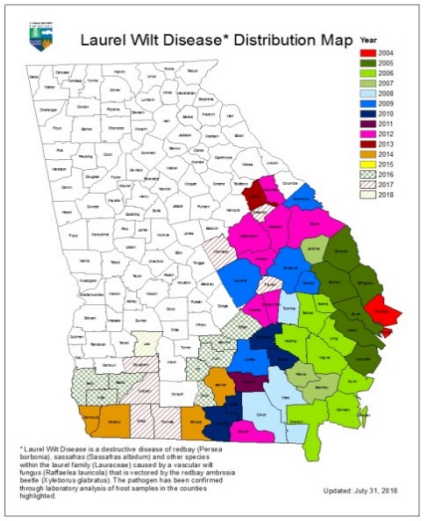
Laurel Wilt Disease in the United Sates

As of September 2018, Laurel wilt disease had been confirmed in 61 counties in Georgia. Positive Laurel wilt disease detections were made in sassafras in Columbia and Lee Counties.

The Georgia Forestry Commission continues to document the spread of this and other destructive nonnative invasive insects and diseases. Training will continue to prepare GFC foresters and technicians for conducting surveys and detection as Laurel wilt disease moves into new areas.

The Forest Health Staff began assisting Dr. Bud Mayfield, USDA Forest Service, Southern Research Station, with his project "Monitoring Spread and Impact of Laurel Wilt in Sassafras Beyond the Gulf-Atlantic Plain". Sassafras sites were located in the Coastal Plain and Piedmont regions. A Lindgren funnel trap and triple-vane panel trap with wet-style cups were deployed on each site. Traps are being monitored every two weeks with insect specimens being sent to Dr. Mayfield for identification.

Additional information on LWD can be found at the Georgia Forestry Commission home page: Laurel Wilt Disease Information, and the USDA Forest Service Laurel Wilt website: Laurel Wilt Disease Information Map



Laurel Wilt Disease in Georgia

Invasive Weeds:

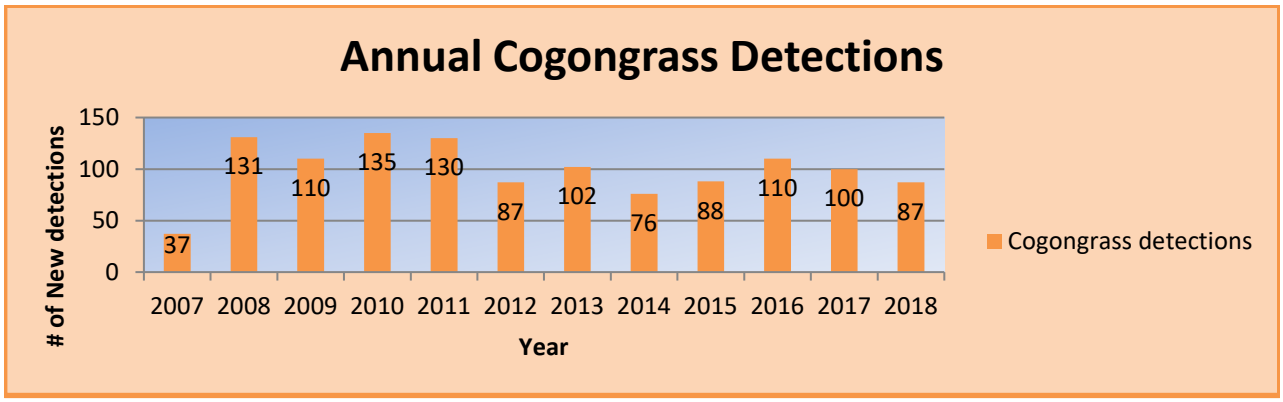
Cogongrass

Although many invasive plants cause problems within Georgia, the majority of our efforts have focused on cogongrass. All known cogongrass infested sites are being treated by either the Georgia Forestry Commission.

The GFC spearheads an effort to bring all concerned groups and agencies under this "Task Force" to detect cogongrass. A total of 23 state, federal and private partners signed an agreement to establish the entire state of Georgia as a Cooperative Weed Management Area for cogongrass in May 2008. These partners are contacted to remind them of the Spring flowering and seeding period. The combined effort of this group has had far reaching impacts in educating the public about cogongrass as well as helping to locate all infested sites. All information regarding this nonnative invasive weed has been assembled at this web site: Cogongrass Information.

The education efforts of the Georgia Forestry Commission have paid dividends and initial cogongrass reports are being filed across the state. Statewide, forest health training was provided to foresters, resource managers, loggers, public works departments (state and county), nurseries, regulatory agencies, landowners and at field days on 77 occasions with 32,413 attendees being reached.

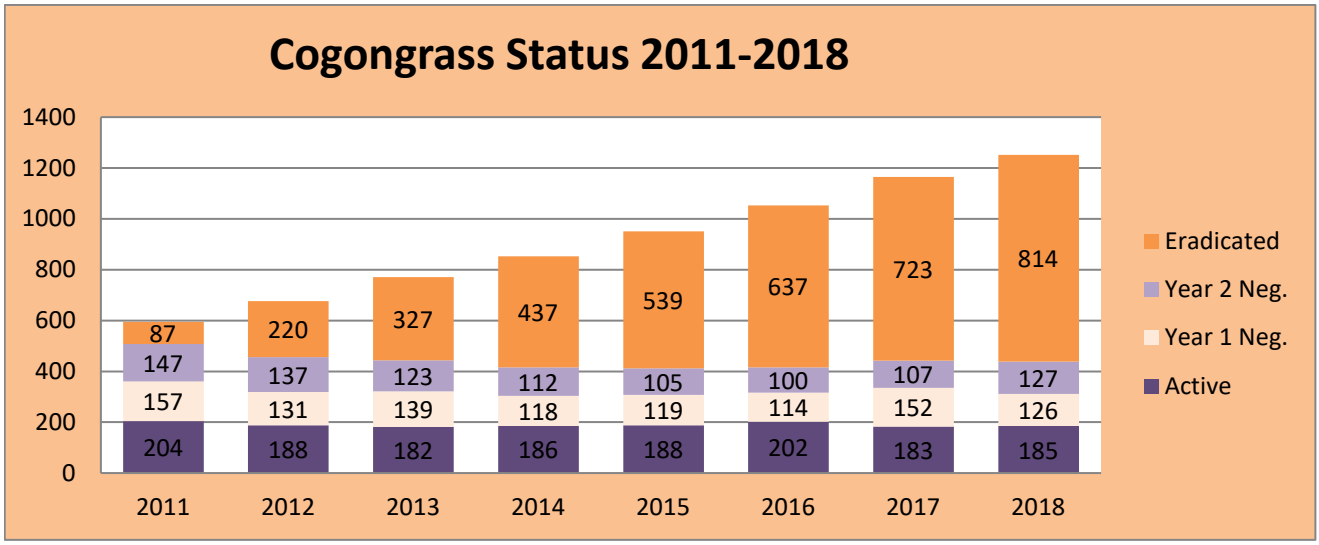
There have been 87 new cogongrass infestation sites reported and treated by the GFC during this fiscal year.



Cogongrass Detection by Year

The GFC continues to treat all new sites with forestry herbicides, normally imazapyr and/or glyphosate, at no cost to landowners.

This nonnative invasive weed has now been found in **61** Georgia counties, involving **1,252** sites. Dooly County, located in southwest Georgia, was the only new county with a cogongrass detection in 2018. In Georgia, **319 acres** of cogongrass have been treated with all known sites being sprayed at least once; most of the infestations in Georgia are between **1/20 - 1/4** acre in size. Based upon post-treatment inspections, approximately **85%** of all known sites are being reported as negative for cogongrass. Three consecutive years of negative evaluation is required for a cogongrass site to be deemed as eradicated. There are **126** sites in Georgia that have shown one year of negative post inspection, **127** sites that have shown two years of negative post inspection and **814 sites have been declared eradicated**.



The table above displays the number of cogongrass spots in each category annually from 2011-2018

The cogongrass epicenter in Georgia is located in the southwest corner of the state. The majority of all new detections over the past few years have been in this region, and the most active counties over the past several years are Decatur, Early, Grady, and Thomas.

In an effort to increase public awareness and education, an information newsletter is posted semi-annually on the GFC website homepage and is e-mailed to landowners and partners across the Southeast. This newsletter contains reminders for landowners to be vigilant for new infestations of

cogongrass, gives pictures for identification purposes, and provides an update on the current status of cogongrass infestations in Georgia.

The Georgia Forestry Commission web site provides more cogongrass information. Click the link Cogongrass Information

Dirty Dozen List of Invasive Weeds:

2017 is our seventh year working with The Forest Inventory and Analysis (FIA) team developing data providing a defendable ranking of invasive plants. Since 2009 the "Targeted Watch List "of nonnative invasive plants did not change from year to year, and we are seeing trends in the total acres of our twelve worst nonnative invasive plant species that aggressively compete with and displacing native communities across Georgia.

The "Dirty Dozen List" continues to be a valuable tool in combating nonnative invasive weeds in Georgia.

FOREST HEALTH PROGRAM

Top Twelve Nonnative Invasive Plants

2017 Dirty Dozen List

Rank	Species	2015	2013	2011	2009
1	Non-native privet	1,115,920	637,211	726,148	637,916
2	Nepalese browntop	192,070	102,722	111,836	70,001
3	Chinaberry	82,220	53,165	67,534	59,872
4	Non-native lespedeza	67,260	36,470	41,069	40,630
5	Japanese climbing fern	35,900	21,152	20,563	16,271
6	Kudzu	35,020	34,625	42,158	35,981
7	Non-native olive	33,310	18,765	18,506	17,090
8	Chinese tallowtree	31,780	13,876	15,348	11,314
9	Mimosa	30,750	11,318	18,344	15,420
10	Wisteria	15,560	6,571	10,082	7,437
11	Exotic rose	11,390	13,172	15,686	12,974
11a.	English Ivy	6,520	10,852	5,943	4,785
12	Cogongrass* (Acres)(12/31/2016)	273	270	196	167

Invasive Species: Any plant or animal that has been introduced and aggressively competes with and displaces local native communities; normally having no native enemies to limit reproduction and spread.

59 counties have had cogongrass detections since 2007, and to date 29 of the 59 counties are now free of cogongrass. Georgia's proactive treatment program assists landowners across the state, and 80% of all known cogongrass spots in Georgia are considered inactive.

* Cogongrass has not been recorded on FIA plots. The Georgia Forestry Commission documents all known cogongrass infestations.

The Dirty Dozen List of Non-native Invasive Species Removing Honeysuckle and Fescue.

2017 Dirty Dozen List of Nonnative Invasive Plants

Invasive Plant Species Control Program:

Strategies to address the onslaught of invasive species and their control is an escalating issue. The Forest Health staff continues to educate the public about the harm nonnative invasive plants can cause

in Georgia. Regional and local programs have been conducted during the past year to bring relevant and current topics to the landowners of Georgia and our federal and state partners.

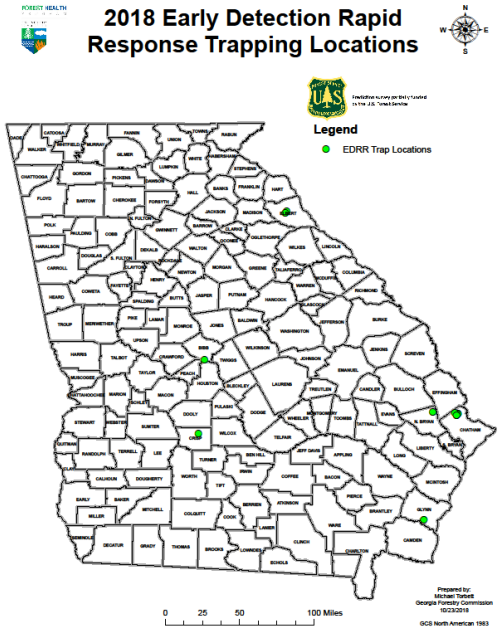
From 2011 to 2016, GFC's Invasive Plant Cost Share Program helped 261 landowners treat and control 7,254 acres of non-native invasive plants. In July 2017, the funding for the Invasive Plant Cost Share Program was once again first offered to the 11 county CISMA. With no applications from these counties, another round of Invasive Plant Species Cost Share funding was opened statewide and 23 applicants were selected for funding. This funding represented 1,144 acres of assistance to utilize the $57,200 available in the program. Technical assistance was provided to landowners by GFC foresters for evaluation of sites, and determining the steps landowners should take to expect successful results.

In June of 2018, $100,000 in funding was offered to landowners statewide. A change was made to the program this year, and Callery pear replaced non-native roses. Georgia Forestry Commission foresters selected 47 applications to utilize $100,125. All 2018 contracts are to be completed by April 1, 2019.

Early Detection Rapid Response:

During the annual warehouse survey, 12 sites were selected across the state to establish a total of 48 Early Detection Rapid Response traps and Cooperative Agriculture Pest Survey traps. Twelve Lindgren funnel trap sites (48 traps) were deployed in five geographic locations across Georgia; Macon, Cordele, Elberton, Savannah and Brunswick areas for the detection of nonnative exotic bark and ambrosia beetles around warehouse sites identified as high priority sites. The traps were inspected on a two week schedule for 12 weeks, with trapping concluding at the end of May 2018.

In 2018, 252 warehouses visits were conducted across the state, which includes 37 new warehouse sites. One new suspect pest was collected at the Port of Brunswick. This pest was new in the state of Georgia and was captured at the port. The sample was sent to the Otis Lab for DNA analysis. Please see the paragraph below "First Introductions to Georgia".



Early Detection Rapid Response Trap Locations

First Introduction to Georgia:

In 2018, a new first introduction to Georgia was found at the Port of Brunswick. **Xyleborinus andrewesi** was discover in a Lindgren funnel trap hung at the Port of Brunswick with Sirex lure. This new find was identified by Bob Androw on July 12, 2018. No damage has been documented on native

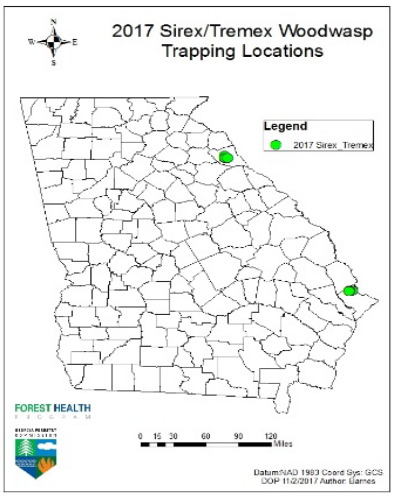
vegetation around the initial discovery sites, and the preferred native plant hosts have not been determined.

Sirex / Tremex Woodwasp

International cargo shipments containing solid wood packing material (SWPM) pose a severe and present threat to our forests in Georgia, due to the possibility of nonnative invasive pests being introduced to the United States.

The Sirex woodwasp trapping is conducted in conjunction with trapping for Tremex woodwasp (Tremex fuscicornis), which was identified during warehouse trapping in Elberton, Georgia in 2012 as a new first introduction to the United States. Trapping began in June, with 24 traps established (12 Sirex traps and 12 Tremex woodwasp). Traps were inspected every two weeks and suspect catches were hand carried to Rick Hoebeke in Athens. Trapping was completed the first week of October.

No Sirex noctilio or Tremex woodwasp have been captured to date.



Sirex / Tremex Trapping Locations

Emerald Ash Borer

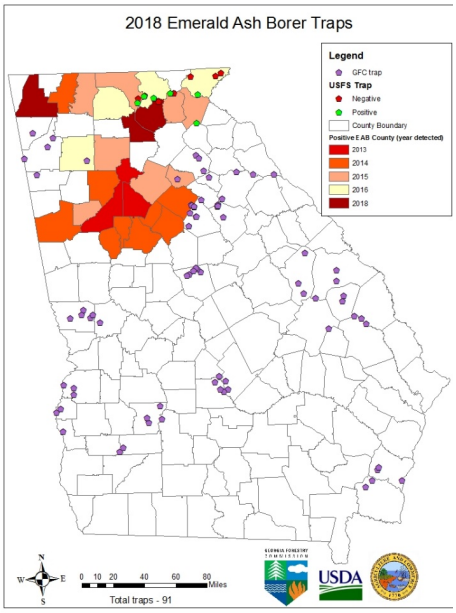
Emerald Ash Borer was first discovered in Georgia in DeKalb and Fulton Counties in July 2013, and additional insects/counties were detected in 2014, 2015, 2016 and 2018, bringing the total number of Georgia Counties to 26. In 2018, infestations in Dawson and Walker County were found from larvae in bark samples, and positive EAB identification in Lumpkin County was from purple prism traps on Forest Service land. The counties known to have EAB are: **Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Dawson, DeKalb, Douglas, Fannin, Fayette, Fulton, Gilmer, Gwinnett, Habersham, Henry, Lumpkin, Murray, Newton, Rabun, Rockdale, Union, Walker, Walton, White, and Whitfield.**

With the implementation of a statewide quarantine in November 2017, funding for contractor-placed traps ended, but in 2018, 78 traps were hung by GFC employees.

The majority of the work GFC conducted in the 2017-2018 focused on determining quarantine boundaries and issuing compliance agreements. This work included education and outreach about the quarantine regulations and bringing wood users and producers under compliance with federal regulations. 22 compliance agreements remain active which includes two hardwood saw and veneer mills, 11 chip mills, one pulp mill, three mulch manufacturers and five firewood processors. With Georgia's decision to adopt a state-wide quarantine, this eliminated the need for many compliance agreements for companies that tend to move wood locally or across state lines with existing

quarantines in place. This decision, however, prompted new compliance agreements for companies that ship chips or fuel wood into Florida or certain parts of Alabama.

Emerald Ash Borer will continue to be included in all Master Timber Harvester educational presentations in the upcoming year, as well as any presentation made by the Forest Health staff.



2018 Emerald Ash Borer Traps

Asian Gypsy Moth Survey:

Gypsy moth is a serious forest pests capable of causing severe damage to hardwood trees, especially oaks. On September 25, 2015, a single, adult male Asian gypsy moth was identified in an early detection trap near the Port of Savannah in Garden City, Georgia. This single detection of a federally regulated pest, Asian gypsy moth, in the vicinity of a port of entry produced a partnership between federal and state cooperators to initiate an extended three year delimiting survey.

Three years of delimit trapping has been completed to determine if a population of Asian gypsy moth has established in Savannah, Georgia. On May 14, 2018, The Georgia Forestry Commission established 909 Gypsy moth traps along the Savannah River Waterway, to the south side of Savannah. On September 12, 2018, the final year of the three year delimitating trapping survey was completed and a single gypsy moth was trapped near downtown Savanah. This find was considered to be a “hitch hiker” and required no additional trapping.

In addition to trapping Asian Gypsy Moth in the Savannah area, the Forest Health Management team also established limited pheromone-baited traps for gypsy moth inside the Port of Brunswick. There were no positive traps detected in this area in 2018.

In May 2019, the GFC will establish approximately 250 traps in the vicinity of the Port of Savannah to continue monitoring for any possible Asian Gypsy Moth. These areas will be monitored due to the high risk of introduction.

Firewood Education and Outreach:

The Georgia Forestry Commission has formed a long term collaborative partnership with the Georgia State Parks Division of the Department of Natural Resources. The goal is to encourage campers and travelers within Georgia, and visitors from out of state, to leave their firewood at home and buy locally harvested or certified firewood. This outcome is the primary reason for participating in the South-wide

firewood education and outreach program that presents a unified message concerning the dangers of transporting firewood. This program does not limit the presentation of information to a narrow targeted species, but expands the discussion to a wide range of nonnative invasive species that can harm our forests. This public awareness message has been disseminated to Georgia State Parks and to individuals using park facilities.

2018 was the final year of using promotional material to drive the "**Buy it Where You Burn it**" theme home, the message is highlighted with outreach material and promotional items to be used in campers and at camp sites. These items are used by campground hosts, front desk check-in personnel, interpretive rangers, and park managers as a reminder of the importance of not transporting firewood.

All 44 state parks, with camp sites, were visited and each forest health specialist encouraged the parks to only carry firewood that has been obtained from certified firewood dealers. With this being the final year of the program it is reassuring that all state parks are encouraging patrons to buy certified firewood on site or to buy firewood from locally certified dealers. Even with the close of the "Buy it where you burn it" program, it is our hope that we have planted a seed.